



A STUDY TO EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING INTERPRETATION OF ELECTROCARDIOGRAM (ECG) AMONG SECOND YEAR BSC NURSING STUDENTS IN SELECTED COLLEGE OF NURSING AT RAIPUR, CG.

Ranjana

Gracious College of Nursing, Abhanpur , Raipur (CG).

ABSTRACT

Electrocardiography is the most commonly used diagnostic test in cardiology. If properly interpreted, it contributes significantly to the diagnosis and management of patients with cardiac disorders. Importantly, it is essential to the diagnosis of cardiac arrhythmias and the acute myocardial ischemic syndromes. Basic knowledge of the ECG is usually the most difficult to assimilate, as it implies learning the basis of interpretation. With technological advances, changes in provision of healthcare services and increasing pressure on critical care services, ward patients' severity of illness is ever increasing. Competency in cardiac rhythm monitoring is beneficial to identify changes in cardiac status, assess response to treatment, diagnosis and post-surgical monitoring. Every nursing student must be aware of the importance of correlating clinical findings after a complete examination with the ECG finding. A good basic ECG interpretation may rely on the ability to combine clinical skills with basic ECG interpretation.

The study is aimed at assessing the effectiveness of planned teaching program for second year BSc nursing students. Research design consisted of a pre-experimental approach with one group pre and posttest to evaluate the effectiveness of a structured teaching program. The population for the study was 60 second year BSc nursing students at selected college of Raipur. The non-probability sampling technique was used for data collection. The Closed –ended questionnaire was developed as tools. Descriptive and inferential statistics were used to data analysis. The pretest knowledge score was 26.4% and after implementation of STP the students' knowledge up to 71% regarding ECG.

KEYWORDS: Electrocardiogram, STP, Knowledge, Student, Skills, Approach

INTRODUCTION:

Cardiovascular diseases are the world leading killer disease. The factors that make the occurrence of cardiovascular diseases are more probable. The major risk factors include over weight, central obesity, high BP, dyslipidaemia, diabetes and unhealthy dietary patterns. According to the recent statistics cardiovascular diseases accounting for 16.7 million or 29.2% total global deaths in 2003. In India in past five decades rates of coronary diseases among urban population have risen from 4% to 11%. The WHO estimates that 60% of the worlds cardiac patients will be Indian by 2010. Electrocardiography (ECG) is the most common diagnostic evaluation for many cardiovascular disorders.

OBJECTIVES OF THE STUDY:

- 1) To assess the knowledge of second year BSc nursing students regarding interpretation of ECG before administering structured teaching program.
- 2) To assess the knowledge of second year BSc nursing students regarding interpretation of ECG after administering structured teaching program.
- 3) To evaluate the effectiveness of structure teaching program by comparing pre-test and post-test knowledge regarding interpretation of ECG among second year BSc nursing students.

REVIEW OF LITERATURE:

- A study conducted in 2004 to examine the effect of web based teaching method on undergraduate nursing student's of electrocardiography. The study used a pre-test post-test experimental design. A total of 105 senior nursing students were recruited at a university in Korea. In that 54 students were assigned to an experimental group & 57 were assigned to a control group. Knowledge about ECG among students in the control group was significantly lower than that of students in study group ($p < 0.01$) conversely the ability to interpret ECG recording was significantly higher among students in the web based group ($p < 0.05$). No significant difference found between the two groups in level of motivation or satisfaction with learning. The self directed web based ECG learning programme appears to be effective in helping nursing students to interpret ECG recording.
- In 2009 a study conducted at Thrissur, Amala Institute of Medical Sciences and Cardiac Centre regarding the incidence of cardiac diseases, which stated that Kerala compared to other states, was high in cardiac cases. The incidence of cardiac problems was very high in the urban area of Kerala than the areas of the country. Latest data collected from WHO, suggest that by 2010 there would be close to 100 million cardiac patients in India. It is 30 millions now. As per the WHO findings, men, women and children are at risk. In Karnataka the incidence of cardiac diseases has doubled from the last years. As the researcher felt that educating the younger population will have a positive influence on preventing cardiac diseases in an earlier and they can use ECG as their easy reachable diagnostic tool.

MATERIAL AND METHOD:

Research design consisted of a pre experimental approach with one group pre and post-test was used to evaluate the effectiveness of a structured teaching program. The population selected for the study was 60 second year BSc nursing students in selected college of Raipur. The samples were selected by using non-probability, purposive sampling technique.

The development of tools involved steps of test construction i.e. preparing the blue print, selection of items. Content validation and establishment of reliability. Content validity of questionnaire was done and modifications were done according to the suggestion given by experts. Pre testing and reliability of tools were done. The tools were found to be reliable. The pilot study was conduct on the 6 second year BSc nursing students of Maharana Pratap College of nursing, Raipur and the study was found to be feasible.

The main data collected between 08.03.2013 to 17.03.2013. Each data were collected by using structural knowledge questionnaire. The structural questionnaire consisting of two section; Section I: demographic data and Section II: consisted of 30 knowledge questionnaire with maximum score of 30. After 7 days of STP post-test was done.

RESULT:

The analysis of data was based on the objectives and hypothesis. Both descriptive and inferential statistics were used to data analysis. Descriptive statistics were used to mean, frequency and percentage with tabular presentation of data. Analysis of paired 't'- test was computed to test the association between knowledge gain score in each aspects. Carl Pearson's correlation coefficient was used for the correlation between pre and post test knowledge of nursing students.

Chi square test was used to test the hypothesis and significance difference in the knowledge of students.

In pre-test knowledge score is 46.4% of the students regarding ECG. In post-test, after implementation of STP students score up to 71% of knowledge regarding ECG.

Paired 't' test used to find the statistical significant between the pre-test and post-test knowledge score. Finding concluded that intervention was very effective in increasing the knowledge of students. Chi-square analysis proved that the effectiveness of STP.

Carl Pearson correlation was used to correlate the level of knowledge with ECG among students. The 'r' value was 0.73 and $p = 0.001$

Objective1:

To assess the knowledge of second year BSc nursing students regarding interpretation of ECG before administering structured teaching program.

PRE TEST KNOWLEDGE ON ECG

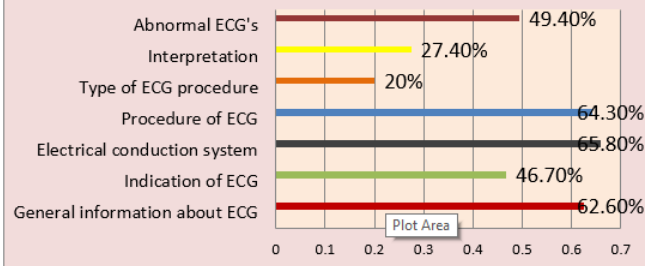


Figure 1: Bar diagram showing the pre-test mean knowledge of respondent in all aspects.

Objective 2:

To assess the knowledge of second year BSc nursing students regarding interpretation of ECG after administering structured teaching program.

POST TEST KNOWLEDGE ON ECG

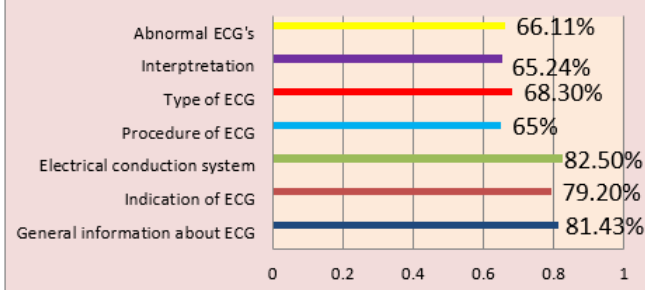


Figure 2: Bar diagram showing the post-test mean knowledge of respondent in all aspects.

Objective 3:

To evaluate the effectiveness of structure teaching program by comparing pre-test and post-test knowledge regarding interpretation of ECG among second year BSc nursing students.

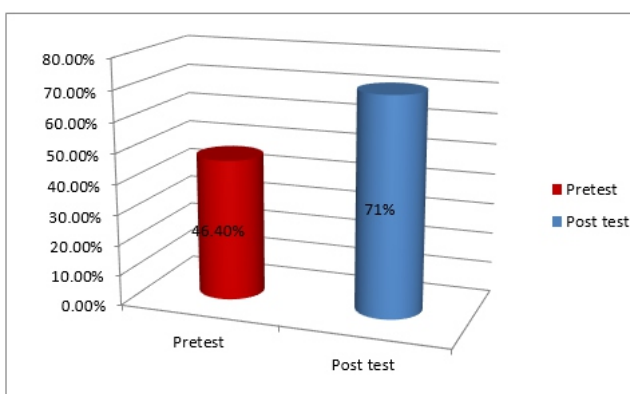


Figure 3: Cylindrical diagram showing the comparison of pre-test and post-test knowledge scores of students.

DISCUSSION:

The study attempt to examine the hypothesis-

HI: There is a significance difference between pretest and post-test knowledge of student regarding ECG.

The major finding of the study is:

Section-I: description of socio-demographic variables.

93% students are between 18-22 age group and 7% in the 23-27 years age group.

23% students are fallen into male group and 77% in the female group.

55% students are having previous knowledge about in the ECG through hospital experience, 30% by video, 13% by book and 2% students have no previous knowledge.

Section II:

Analysis and interpretation of pre-test and post-test knowledge among nursing students.

In pre-test they are having 46% average knowledge on ECG. In pre-test they are having knowledge score 65% electrical conduction system, 64.3% in procedure of ECG, 62.6% in general information about ECG, 49% in the abnormal ECG's, 46.7% in indication, 27.4% in category of interpretation and 20% in the type of ECG.

After implementation of STP students score up to 71% knowledge regarding ECG. In post-test students are having 81.4% knowledge score in general information regarding ECG, 82.5% in electrical conduction system, 79.2% in indication, 68.3% in type of ECG, 66.1% in abnormal ECG's, 65% in procedure and 65% in interpretation.

Section III:

Comparison of pre-test and post-test score to determine the effectiveness of structured teaching program.

The pre-test knowledge of students is 46.4% and post-test knowledge is 71%. The difference between pre-test and post-test knowledge is 24.6%. This difference is show the effectiveness of STP. After the implementation of STP the students' knowledge is increased 24.6%.

Hypothesis testing:

Hypothesis testing done to evaluate the effectiveness of STP on knowledge of ECG interpretation among second year BSc nursing students of Adarsh Nursing Institute and Shitishti College of Nursing, Raipur.

The student's knowledge was increased by attaining the STP program. The 't' test and chi-square test was used to test the hypothesis.

The result show the significance difference between pre-test and post-test knowledge of students. The research hypothesis is accepted.

CONCLUSION:

Prior to implementation of STP samples had average knowledge in all area of ECG. Structured teaching program planned and implemented. The effectiveness of STP evaluate by post-test through implementation of STP. This study finding was supported the effectiveness of additional courses. The additional class on ECG increased the knowledge of nursing students from 46% to 71%. A study stated that the use of structural teaching program increased the knowledge of students.

REFERENCES:

- Black JM, Hokanson JH. (2007). Medical-Surgical Nursing. 7th ed. Saunders. St. Louis (Missouri);
- Brunner and Sidhartha's, text book of Medical Surgical Nursing, 7th ed. page no. 1283-1287.
- Lipman CB, Cascion T. (1994). ECG Assessment and interpretation. 2nd ed. Jaypee Brothers. New Delhi (India).
- Waugh A, Grant A. (2003). Anatomy and physiology in health and illness. 9th ed. Churchill Livingstone. London (U.K);
- Woods LS, Sivarajan FE, Motzer US, Brdges JE. (2005). Cardiac Nursing. 5th ed. Lippincott Williams and Wilkins. Philadelphia (U.S.A);
- Aftab AM, Maham. (2007). Electrocardiographic predictors of mortality in acute stroke. Journal of Park J Me, 46(1), p. 30-3.
- Drew BB. (2002). Celebrating the 100th Birthday of the electrocardiogram lessons learned from research on cardiac monitoring. American Journal of Critical Care, 2, p. 378-86.
- Janathan M, Devid FA. 2007. June Accuracy of diagnosing atrial fibrillation on ECG by primary Care practitioner. British Medical Journal, 29, p. 25-8.
- Kellar K, Raines D. (2004). Arrythmia knowledge- a qualitative study. The journal of acute and critical care, 34(5), p. 309-16.
- Marrison LJ. (2005). Pre hospital 12 lead ECG impact on acute Myocardial infarction, treatment and mortality. Journal of Circulation, 28, p. 180-5.
- Palma JR, Shirley W, Beverly L. (2005). Technology based Vs Traditional instruction - A comparison of two methods of teaching the skill of performing 12 lead ECG. Journal of nursing education prespective, 24(2), p. 70-4.
- Stephens, Kimberly. (2007). Interpreting 12-lead ECG for acute ST-elevator myocardial infarction. Journal of Cardio-vascular Nursing, 28(3), p. 186-93.
- Stephen MS, Demo. (2003). Competency in interpretation of 12 lead ECG a summary and appraisal of published evidence. Journal of Annals of International medicine, 138(9), p. 751-60.
- Thomson TR. Monitoring ECG Changes. Journal of ECG, 99(4), p. 3-9.
- (2003). EKG Strip identification and Evaluation (online). Available at URL: <http://www.mceus.com/ekg/ekglr.htm>. Feb 2013.

16. Jung SK, Senoy, Haway, Park JS, Kim M, (2005). Effect of Web based teaching methods on undergraduate nursing students learning of ECG. Nursing Education (Serial Online) 44(1), Available at [URL: <http://www.journalofnursingeducation.com/show.asp?thing>], March 2013.
17. Lancia L, Marina P, Vitterni, Panco M, (2007): A comparison between the ESAI system 12 lead ECG and standard 12 lead ECG for improved clinical nursing practice, Clinical nursing (serial online) 17(3), Available at [URL: <http://www.ingenta connect.com>], Jan 2013.
18. Leanne Amos (1999): [Testing Nursing Knowledge on performing 12 lead ECG. Health (Serial online)], Available at [URL: <http://www.craps.health.nw.gov.acr/hospolic/st.vincent/1999/html>], Feb 2013.